EARLY WEIGHT BEARING FOLLOWING INTERTROCHANTERIC FRACTURES MANAGED WITH PROXIMAL FEMORAL NAIL; ARE WE OBSESSED WITH COMPLICATIONS?

Original Article Orthopaedics

Nandakumar R¹, Vineet Thomas Abraham², Prabhakaran A³, Chandrasekaran M¹, Swagat Mahapatra⁴

- Professor, Department of Orthopaedics, Mahatma Gandhi Medical College and Research Institute, Sri Balaji Vidyapeeth University, Pondicherry India
- Associate Professor, Department of Orthopaedics, Mahatma Gandhi, Medical College and Research Institute, Sri Balaji Vidyapeeth University, Pondicherry India
- Post graduate, Department of Orthopaedics, Mahatma Gandhi Medical College and Research Institute, Sri Balaji Vidyapeeth University, Pondicherry India.
- Assistant Professor, Department of Orthopaedics, Mahatma Gandhi Medical College and Research Institute, Sri BalajiVidyapeeth University, Pondicherry India

Corresponding Author:

Dr. Vineet Thomas Abraham Associate Professor, Department of Orthopaedics, Mahatma Gandhi Medical College and Research Institute, Sri BalajiVidyapeeth University, Pondicherry India E-mail: abrahamvineet@hotmail.com Mobile: 9786912460

> Article submitted on: 24 April 2016 Article Accepted on: 2 May 2016

Abstract:

Intertrochanteric fractures are a leading cause of morbidity and mortality especially in elderly patients. Allowing patients early mobilization after stabilizing these fractures helps prevent complications like bedsores, deep vein thrombosis, pulmonary complications and muscle atrophy. Some surgeons hesitate to allow full weight bearing mobilization for fear of complications. We decided to prospectively study the functional and radiological outcome of all intertrochanteric fractures, which were fixed with proximal femoral nailing who were started on early weight bearing mobilization.

Methods: 60 patients who sustained intertrochanteric fracture were treated surgically with Proximal Femoral Nail (PFN) and allowed immediate weight bearing from the first day post operatively with walker support were included in the study.

Results: All patients were mobilized full weight bearing on the 1st post operative day after surgery. Almost all the patients were comfortable walking full weight bearing on the 3rd to 4th postoperative day. The mean Harris hip score at the final follow up was 81.7 (range 60-94). Majority of our patients(35) had good Harris hip scores. We had 6(10%) complications in our series of patients there was 1 patient who had derotation screw breakage, 2 patients with screw backout, 1 non union, 1 peri-implant fracture and 1 case of myositis ossificans.

Conclusion: Early mobilization with full weight bearing gives a good outcome with a reduction in morbidity and mortality. It also boosts the confidence of the patient, which has a good effect on the well being, morale and should be recommended following intertrochanteric fracture fixation with PFN.

Key words: Intertrochanteric fracture, Early weight bearing, functional outcome

Introduction

Proximal femoral fracture is one of the most common fractures because of which elderly patients gets admitted in an orthopedic trauma ward. They account for 90 % of all fractures occurring in the proximal femoral region.^{1,2}

Intertrochanteric fractures are a leading cause of morbidity and mortality especially in elderlv patients.3 Allowing patients early mobilization after stabilizing these fractures helps prevent complications like bed sores, deep vein thrombosis, pulmonary complications and muscle atrophy. Surgical treatment is essential for the early recovery of patients and for them to get back to their activities of daily living.

Although various implants are available for the treatment of trochanteric fractures, treating them with load sharing device like a proximal femoral nail allows early weight bearing and leads to earlier recovery and satisfactory union at the fracture site.⁴

Early weight bearing mobilization also leads to early recovery of restoring mobility hip functions and boosting the psychological confidence and morale of the patient. Most hip fracture patients should be allowed unrestricted weight bearing and mobilization post surgery.5,6 Restricted weight bearing or delayed mobilization may lead to a delay in functional recovery, delay in the return to independent living and may result in depression and anxiety. Many surgeons are hesitant to allow the patients full weight bearing in the affected lower limb fractures because of fear of complications like implant cut out, non union or migration of implant and wait for 4-6 weeks before allowing full weight bearing.

Our hypothesis was that early mobilization with weight bearing following proximal femoral nailing for intertrochanteric fractures reduces morbidity and mortality in older patients and also boosts their morale helping them to get back to their daily activities at the earliest.

We decided to prospectively study the functional and radiological outcome of all intertrochanteric fractures which were fixed with proximal femoral nailing who were started on early weight bearing mobilization.

Materials and Methods

The study was conducted in department of orthopedic surgery, MGMCRI. All patients admitted between January 2012 to January who underwent proximal 2015 femoral nailing for intertrochanteric fractures were included in the study. Patients with pathological fractures or with other fractures in the ipsilateral or contralateral lower limb were excluded. Patients presenting with intertrochanteric fractures were clinically evaluated, radiographs were taken and fractures were classified according to Boyd and Griffins classification.7 Pre anaesthetic check up was done and patients underwent fixation with the proximal femoral nail. Post operatively antibiotics and analgesics were given according to the hospital protocol. The patients were mobilized with a walker on the first post operative day with foot touching the ground. Patients were called for regular follow up and were assessed at 1month, 3 months,6 months and at 1 year. At each visit clinical assessment was done and radiographs were taken; functional assessment of the patient was done using the Harris hip score⁸. The Harris hip score is a multi

dimension observational assessment, which contains 8 items representing pain, walking function, activities of daily living and range of motion of hip joint.

Results

60 patients were included in the study. There were 42(70%) males and 18(30%) females. (Fig-1). 23(38%) patients were less than 60 years and 37(62%) were more than 60 years. In 46(76%) of patients the mode of injury was due to a slip and fall and 14(23%) it was due to a road traffic accident.

38(58%) patients had a Type 2 (Boyd and Griffin), 6 patients had Type 3 and 16 patients had Type 4 intertrochanteric fracture (Fig. 2). The mean time taken from the day of injury to the time of surgery was 3(range 1-6) days. All patients were mobilized full weight bearing on the 1st postoperative day after surgery (Fig. 3). Almost all the patients were comfortable walking full weight bearing on the 3rd to 4th postoperative day.

The mean Harris hip score at the final follow up was 81.7 (range 60-94). The older patients had poorer scores. Majority of our patients(35) had good Harris hip scores (Fig. 4). The mean follow up was 14 months.

We had 6(10%) complications in our series of patients there was 1 patient who had derotation screw breakage, 2 patients with screw backout, 1 non union, 1 periimplant fracture and 1 case of myositis ossificans (Fig5,6,7.).The patient with non-union had to undergo hemiarthroplasty and the one with periimplant fracture underwent refixation with long PFN.

90% of our patients were satisfied and were able to get back to their physiological activity within a short time. 10% of patients were not happy because of complications and pain.









Fig 3. Full weight bearing mobilisation.jpg



Fig 4. Harris Hip Score









Fig 7. Back out of screws.jpg



Discussion

Although it is well accepted that early mobilization of hip fractures after surgery is vital for avoiding morbidity and other complications, there are still a number of surgeons who prefer non-weight bearing mobilization for the initial few weeks. Our study was done to assess the clinical, psychological and functional outcome of early weight bearing following fixation of intertrochanteric fractures with proximal femoral nail based on the hypothesis that it would morbidity reduce and mortality boosting their morale thus leading to a better outcome. With early weight bearing we had 90% patients who were

satisfied with their surgery and had a good or excellent Harris hip score in 75% of the patients. Oldmeadow et al.⁹ studied the effect of early ambulation after hip fracture surgery. They compared early ambulation (first walk postoperative day(POD) 1 or 2) or delayed ambulation (DA) (first walk POD 3 or 4). The early ambulation group of patients walked further than those in the DA group and required less assistance to transfer and negotiate steps. They concluded that keeping patients in bed longer than 2 days post surgery can contribute to delayed functional recovery and delayed discharge. These results were similar to our study as we mobilized our patients on POD 1 itself and the patients were comfortable walking by the 3rd or 4th day.

Kamel HK et al¹⁰ hypothesized that the time to post operative ambulation after hip fracture surgery impacts both the frequency of postoperative complications and the length of hospital stay. They did a retrospective study in 131 patients and concluded that delayed ambulation after hip fracture surgery is related to the development of new onset delirium and pneumonia post surgically as well as to increased length of hospital stay and that early ambulation after hip fracture surgery should be encouraged. Since we mobilized our patients early we had no similar complications

Yunokawa K et al¹¹ studied 65 patients with Intertrochanteric fractures treated with compression hip screw and concluded that early weight bearing as a post operative protocol is useful in elderly patients. Allowing full weight bearing decreases cost of hospitalization, decreased need for prolonged inpatient rehabilitation. It is believed that an aggressive physical therapy program with early weight bearing may facilitate long term success with patients by quickly decreasing the level of impairment that leads to function disability in these patients.

Kubiak et al¹² in their review of early weight bearing after lower extremity fractures in adults reported that there were fewer complication rates following surgical treatment of femoral neck and intertrochanteric femur fractures in elderly patients who were allowed early weight bearing. We had 6(10%) complications out of which 2 patients with complications required surgery.

The limitation of our study is that the study population is small and the study is restricted to only intertrochanteric fractures.

We found that 90% of our patients were satisfied following the procedure and were happy with the treatment. They were able to carry on with their routine activities though some had mild pain occasionally. Patients with early weight bearing did have a good psychological outcome too.

Conclusion

Early mobilization with full weight bearing gives a good outcome with a reduction in morbidity and mortality. It also boosts the confidence of the patient, which has a good effect on the well being, morale and should be recommended following intertrochanteric fracture fixation with PFN.

References

- 1. Parker, M.J.: Fractures of the neck of the femur, Trauma; 10: 43-53, 2008.
- Parker, M.J.: Current concepts in the treatment of hip fracture. Z Gerontol Geriat; 34: 74-77, 2001
- Weller I, Wai EK, Jaglal S, Kreder HJ. The effect of hospital typeand surgical delay on mortality after surgery for hip fracture. J Bone Joint Surg Br 2005;87:361-6.
- Simmermacher RK, Bosch AM, Van der Werken Ch. The AO/ ASIF proximal femoral nail (PFN): a new device for the treatment of unstable proximal. Injury 1999;30:327-32.
- Handoll, H.H.G., Parker, M.J. and Sherrington, C.: Mobilization strategies after hip fracture surgery in adults (Cochrane Review) In: The Cochrane Library, Issue 4, Chichester, UK: John Wiley & Sons, Ltd. 2003.
- Ali MMI. Influence of Early post Operative Weight Bearing on Hip Function after Femoral Trochanteric Fractures. Bull. Fac. Ph. Th. Cairo Univ 2010; 15(2)
- Boyd HB, Griffin LL. Classification and treatment of trochanteric fractures. Arch Surg. 1949; 58:853

- Harris WH. Traumatic arthritis of the hip after dislocation and acetabular fractures: treatment by mold arthroplasty. An endresult study using a new method of result evaluation. J Bone Joint Surg Am. 1969 Jun;51(4):737-55
- Oldmeadow LB, Edwards ER, Kimmel LA, Kipen E, Robertson VJ, Bailey MJ. No rest for the wounded: early ambulation after hip surgery accelerates recovery. ANZ J Surg. 2006 Jul;76(7):607-11.
- Kamel HK, Iqbal MA, Mogallapu R, Maas D, Hoffmann RG. Time to ambulation after hip fracture surgery: relation to hospitalization outcomes. J Gerontol A BiolSci Med Sci. 2003 Nov;58(11):1042-5.
- 11. Yunokawa K, Fujimoto Y, Kanazawa T, Ota M, Yamada K. Early weight bearing for Intertrochanteric fractures of the femur in the elderly. The Journal of the Chugoku-Shukoku Orthopaedic Association 2014 DEC; 6(2):181-185
- 12. Kubiak EN, Beebe MJ, North K, Hitchcock R, Potter MQ.Early weight bearing after lower extremity fractures in adults.J Am AcadOrthop Surg. 2013 Dec;21(12):727-38